

Claims

1. A door for at least partially covering a doorway, the door comprising:
a first door panel movable across the doorway between an open position and a closed position;
a flexible elongate member coupled to the first door panel to move the first door panel between the open position and the closed position;
a drive unit connected to the flexible elongate member and being selectively operable in an opening mode where the drive unit enables the first door panel to move toward the open position, a closing mode where the drive unit enables the first door panel to move toward the closed position, and a stop mode where the drive unit holds the first door panel substantially stationary; and
a sensor in sufficient proximity with the flexible elongate member to sense tension therein, wherein the sensor provides an overload signal in response to the tension reaching a predetermined limit indicative of the first door panel being obstructed, and wherein the drive unit responds to the overload signal by changing from the closing mode to one of the opening mode and the stop mode.
2. The door of claim 1, wherein the first door panel moves horizontally between the open position and the closed position.
3. The door of claim 1, wherein the sensor provides the overload signal in response to the tension decreasing to the predetermined limit.
4. The door of claim 1, wherein the sensor senses the tension in the flexible elongate member by sensing the slackness of the flexible elongate member.
5. The door of claim 4, wherein the sensor is a proximity sensor that detects whether the flexible elongate member has moved to a certain distance from the proximity sensor.
6. The door of claim 1, wherein the flexible elongate member has a first section that is more elastic than a second section.
7. The door of claim 6, wherein the first section is a strap, and the second section is a chain.

8. The door of claim 6, wherein the first section is a cord, and the second section is a chain.
9. The door of claim 6, wherein the first section includes a spring.
10. The door of claim 1, wherein the sensor is connected inline with the flexible elongate member.
11. The door of claim 1, wherein the sensor senses tension in the flexible elongate member by sensing a change in length of at least a portion of the flexible elongate member.
12. The door of claim 1, further comprising a spring-loaded wheel that supports the flexible elongate member, wherein the sensor senses tension in the flexible elongate member by sensing translation of the spring-loaded wheel.
13. The door of claim 1, further comprising a second door panel connected to the flexible elongate member and being movable across doorway, wherein the first panel and the second panel move in opposite directions.
14. A door for at least partially covering a doorway, the door comprising:
 - a first door panel movable across the doorway between an open position and a closed position;
 - a left-hand wheel;
 - a right-hand wheel;
 - a flexible elongate member comprising a left-hand loop supported by the left-hand wheel, and a right-hand loop supported by the right-hand wheel, wherein the left-hand loop includes a left-hand opening leg and a left-hand closing leg, and the right-hand loop includes a right-hand opening leg and a right-hand closing leg, the left-hand opening leg and the right-hand closing leg are coupled to the first door panel to open and close the door respectively, and the left-hand closing leg and the right-hand opening leg are coupled to each other;
 - a drive unit operatively connected to the flexible elongate member to vary a closing tension in the right-hand closing leg and to vary an opening tension in the left-hand opening leg, wherein the drive unit is selectively operable in an opening mode, a closing mode, and a stop mode, wherein the opening tension is greater than the closing tension when

the drive unit is in the opening mode whereby the left-hand opening leg pulls the first door panel toward the open position, and the closing tension is greater than the opening tension when the drive unit is in the closing mode whereby the right-hand closing leg pulls the first door panel toward the closed position, and the first door panel is held substantially stationary when the drive unit is in the stop mode; and

a sensor in sufficient proximity with the flexible elongate member to sense tension therein and to create an overload signal in response to the tension in the flexible elongate member reaching a predetermined limit, wherein the drive unit switches from the closing mode to one of the opening mode and the stop mode in response to the overload signal.

15. The door of claim 14, further comprising a second door panel coupled to the right-hand opening leg and the left-hand closing leg for respectively opening and closing the door.

16. The door of claim 14, wherein the first door panel moves horizontally between the open position and the closed position.

17. The door of claim 14, wherein the sensor provides the overload signal in response to the tension decreasing to the predetermined limit.

18. The door of claim 14, wherein the sensor senses the tension in the flexible elongate member by sensing the slackness of the flexible elongate member.

19. The door of claim 18, wherein the sensor senses the slackness in the right-hand opening leg.

20. The door of claim 14, wherein the sensor is a proximity sensor that detects whether the flexible elongate member has moved to a certain distance from the proximity sensor.

21. The door of claim 14, wherein the right-hand closing leg is more flexible than the right-hand opening leg.

22. The door of claim 21, wherein the right-hand closing leg is a strap, and the right-hand opening leg is a chain.

23. The door of claim 21, wherein the right-hand closing leg is a cord, and the right-hand opening leg is a chain.

24. The door of claim 21, wherein the right-hand closing leg includes a spring.
25. The door of claim 14, wherein the sensor is connected inline with the flexible elongate member.
26. The door of claim 14, wherein the sensor senses tension in the flexible elongate member by sensing a change in length of at least a portion of the flexible elongate member.
27. The door of claim 14, further comprising a spring-loaded wheel that supports the flexible elongate member, wherein the sensor senses tension in the flexible elongate member by sensing translation of the spring-loaded wheel.
28. A method of selectively moving a door panel to a closed position and an open position relative to a doorway, comprising:
- using a flexible elongate cable to move the door panel toward the closed position;
 - sensing tension in the flexible elongate member; and
 - discontinuing the movement of the door panel toward the closed position in response to sensing the tension in the flexible elongate member.
29. The method of claim 28, wherein the step of discontinuing the movement of the door panel toward the closed position is in response to the tension in the flexible elongate member decreasing to a predetermined limit.
30. The method of claim 28, wherein the step of discontinuing the movement of the door panel toward the closed position is in response to the tension in the flexible elongate member increasing to a predetermined limit.
31. The method of claim 28, wherein the step of sensing the tension in the flexible elongate member is achieved by detecting the slackness of the elongate member.
32. The method of claim 31, further comprising using a proximity sensor for detecting the slackness of the elongate member.